



State of Utah

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Department of Environmental Quality

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DIVISION OF AIR QUALITY
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Director

DAQE-IN0107060040-09

February 5, 2009

Joseph R. Gearo Jr.
Director of Environmental Programs
Dugway Proving Ground
Department of the Army
STEDP EP CR
Dugway, UT 84022

Dear Mr. Gearo Jr.:

Re: Intent to Approve: Modification to Approval Order DAQE-AN0706035-05 for Fuel Limits and Monitoring Requirements; Tooele County; CDS A; ATT; HAPs; MACT
Project Number: N010706-0040

The attached document is the Intent to Approve for the above-referenced project. The Intent to Approve is subject to public review. Any comments received shall be considered before an Approval Order is issued. The Division of Air Quality is authorized to charge a fee for reimbursement of the actual costs incurred in the issuance of an Approval Order. An invoice will follow upon issuance of the final Approval Order.

Future correspondence on this Intent to Approve should include the engineer's name as well as the DAQE number as shown on the upper right-hand corner of this letter. The project engineer for this action is Mr. Nando Meli, who may be reached at (801) 536-4052.

Sincerely,

Ty L. Howard, Manager
Major New Source Review Section

TLH:NM:kw

cc: Mike Owens
Tooele County Health Department

STATE OF UTAH

Department of Environmental Quality

Division of Air Quality

**INTENT TO APPROVE: Modification to Approval Order
DAQE-AN0706035-05 for Fuel Limits and Monitoring
Requirements**

**Prepared By: Mr. Nando Meli, Engineer
Phone: (801) 536-4052
Email: nmeli@utah.gov**

INTENT TO APPROVE NUMBER

DAQE-IN107060040-09

Date: February 5, 2009

Dugway Proving Ground

Source Contact:

Mr. Jason Hill

Phone: (435) 831-3562

**Ty L. Howard, Manager
Major New Source Review Section
Utah Division of Air Quality**

ABSTRACT

Dugway Proving Ground has requested approval to change the monitoring requirements of the Material Testing Facility pressure transducer and establish a limit for propane consumed on the base. Currently in their AO, DAQE-AN0706035-05 dated September 26, 2005, they are required to maintain a negative pressure inside the Material Test Facility in relation to the atmospheric pressure outside the building. A transducer is used to measure the building pressure. They are required to test the accuracy of the transducer once every 12-months. The manufacturer guarantees the accuracy for a longer period of time based upon its use. Dugway Proving Ground has requested that they be allowed to verify the accuracy according to the manufacturer's specifications. The current AO lists all equipment and does not have a fuel usage limit for the propane fired equipment. Dugway Proving Ground has requested that the equipment list be replaced with a fuel limit for the propane-fired boilers, heaters and generators. This will limit the potential to emit emissions for the propane fired equipment. The equipment that is regulated will be listed in the AO equipment list.

The area of Tooele County, where Dugway Proving Ground is located, is an attainment area of the NAAQS for all pollutants. The NSPS 40 CFR 60 Subpart Dc and the MACT 40 CFR 63 Subpart ZZZZ regulations apply to this source. The NESHAP do not apply to this source. Title V of the 1990 Clean Air Act Amendments applies to this source. The Title V operating permit for this source shall be amended prior to the operation of the approved modifications. The emissions, in tons per year, will decrease as follows: PM_{10} – 86.64, NO_x – 51.85, SO_2 – 38.12, CO – 5.88, VOC – 7.17 and HAPs – 3.13. The changes in emissions will result in the following, in tons per year, potential to emit totals: PM_{10} = 7.85, NO_x = 175.17, SO_2 = 63.01, CO = 150.91, VOC = 0.65 and HAPs = 0.43.

The NOI for the above-referenced project has been evaluated and has been found to be consistent with the requirements of UAC R307. Air pollution producing sources and/or their air control facilities may not be constructed, installed, established, or modified prior to the issuance of an AO by the Executive Secretary of the Utah Air Quality Board.

A 30-day public comment period will be held in accordance with UAC R307-401-7. A notification of the intent to approve will be published in the Tooele Transcript on February 10, 2009. During the public comment period the proposal and the evaluation of its impact on air quality will be available for the public to review and provide comment. If anyone so requests a public hearing, it will be held in accordance with UAC R307-401-7. The hearing will be held as close as practicable to the location of the source. Any comments received during the public comment period and the hearing will be evaluated. The proposed conditions of the AO may be changed as a result of the comments received.

General Conditions:

1. This AO applies to the following company:

Site Office

Dugway Proving Ground (DPG)
Dept. of the Army
STEDP EP CR
Dugway, UT 84022-5000

Phone Number (435) 831-3730

Fax Number (435) 831-3749

The equipment listed in this AO shall be operated at the following location:

U.S. Army DPG, STEDP EP CR, Dugway, UT

Universal Transverse Mercator (UTM) Coordinate System: UTM Datum NAD27
4,444,300 meters Northing, 309,300 meters Easting, Zone 12

2. All definitions, terms, abbreviations, and references used in this AO conform to those used in the UAC R307 and Title 40 of the Code of Federal Regulations (40 CFR). Unless noted otherwise, references cited in these AO conditions refer to those rules.
3. The limits set forth in this AO shall not be exceeded without prior approval in accordance with R307-401.
4. Modifications to the equipment or processes approved by this AO that could affect the emissions covered by this AO must be reviewed and approved in accordance with R307-401.
5. All records referenced in this AO or in applicable NSPS standards, which are required to be kept by the owner/operator, shall be made available to the Executive Secretary or Executive Secretary's representative upon request, and the records shall include the two-year period prior to the date of the request. Records shall be kept for the following minimum periods:
 - A. Emission inventories Five years from the due date of each emission statement or until the next inventory is due, whichever is longer.
 - B. All other records Five years.
6. DPG shall conduct its operations of the DPG base in accordance with the terms and conditions of this AO, which was written pursuant DPG's NOI submitted to the DAQ on November 26, 2007 and additional information submitted to the DAQ on February 25, 2008, thru December 8, 2008.
7. This AO shall replace the AO (DAQE-AN0706035-05) dated September 26, 2005.
8. The approved installations shall consist of the following equipment or equivalent*:
 - A. **Boilers and Heaters:**
 - 1) Liquefied Petroleum Gas (LPG)-Fired Boilers and Heaters

Unit Description: All LPG-fired boilers and heaters installed after November 29, 1969, that are rated at greater than 5.0 million British Thermal Units per hour (MMBtu/hr) and less than 10.0 MMBTU/hr

- 2) NSPS LPG-Fired Boilers that are rated greater than 10 MMBTU/hr

Unit Description: Two low-NO_x (40 ppm) boilers rated at 10.5 MMBtu/hr each. These units are subject to 40 CFR 60 Subpart Dc and are located at the Bushnell Materiel Test Facility (BMTF).

- 3) Fuel Oil-Fired Boilers and Heaters

Unit Description: All fuel oil fired boilers and heaters rated at greater than 1 MMBtu/hr installed after November 29, 1969.

- 4) NSPS Fuel Oil-Fired Boilers that are rated greater than 10 MMBTU/hr

Unit Description: Two low-NO_x, fuel oil-fired boilers rated at 10.5 MMBtu/hr each. These units are subject to 40 CFR 60 Subpart Dc and are located at the Combined Chemical Test Facility (CCTF).

B. Generators:

- 1) Diesel-Fired Generators

Unit Description: All emergency and non-emergency diesel-fired generators irrespective of manufacture date or size rating.

- 2) Diesel-Fired Emergency Generators

Unit Description: All diesel-fired emergency generators irrespective of manufacture date or size rating.

- 3) Gasoline-Fired Generators

Unit Description: All emergency and non-emergency gasoline-fired generators irrespective of manufacture date or size rating.

- 4) Gasoline-Fired Emergency Generators

Unit Description: All gasoline-fired emergency generators irrespective of manufacture date or size rating.

- 5) LPG-Fired Generators

Unit Description: All emergency and non-emergency LPG-fired generators irrespective of manufacture date or size rating.

- 6) LPG-Fired Emergency Generators

Unit Description: All LPG-fired emergency generators irrespective of manufacture date or size rating.

C. Outdoor Testing (designated as OT)

Unit Description: Outdoor test materials such as obscurants, smokes, interferents, and tracers are disseminated by various means including but not limited to smoke generators, aircraft, or grenades.

D. CCTF (designated as CCTF-0)

Unit Description: Operations with various chemical agents and non-agents are conducted at the CCTF in buildings 4156 and 4165. The CCTF includes emission units CCTF 1 and 2.

1) CCTF Bldg. 4156 Chemical Agent Rooms (designated as CCTF-1)

Unit Description: Chemical agent operations are conducted in rooms located in bldg. 4156. Air from each room that has chemical agent operations performed in them is exhausted to the atmosphere through laboratory exhaust stacks equipped with HEPA, carbon, carbon, and HEPA filters in series.

2) CCTF Bldg. 4165 Chemical Agent Rooms (designated as CCTF-2)

Unit Description: Chemical agent operations are conducted in laboratory rooms located in bldg. 4165. Air from each room is exhausted to the atmosphere through laboratory exhaust stacks equipped with HEPA, carbon, and carbon filters in series.

E. Open Burn/Open Detonation (Source Wide) (designated as OBOD-0)

Unit Description: Open Burning (OB) and Open Detonation (OD) of residual munitions and propellants, explosives, and pyrotechnics (PEP) is conducted in the Dugway Thermal Treatment Facility (DTTF) and on the open ranges.

1) Open Burn in DTTF (designated as OBOD-1)

Unit Description: OB in the DTTF is conducted to destroy solid propellant, propellant charges, and bulk explosives.

2) Open Detonation in DTTF (designated as OBOD-2)

Unit Description: OD in the DTTF is used to destroy conventional range recovered munitions, residual explosive material housed in munitions, hung ordnance, solid propellants and obscurant when the explosive and nonexplosive components cannot be safely separated.

3) Open Detonation on Open Range (designated as OBOD-3)

Unit Description: Due to safety concerns, some munitions must be destroyed in place. In these emergency situations, explosives ordnance

experts use Department of Defense approved procedures best suited to the specific circumstances.

F. Bushnell Materiel Test Facility (MTF) (designated as MTF-0)

Unit Description: The Bushnell MTF is used to test military hardware under varied exposure conditions including direct exposure to chemical agents and non-agents. The MTF includes emission units MTF 1 through 8.

1) MTF Test Chambers (designated as MTF-1)

Unit Description: Operations with chemical agents and non-agents are conducted in the Multi-Purpose Chamber (MPC), Agent Transfer Chamber (ATC), and Closed System Chamber (CSC). Chamber air emissions are controlled by the Pollution Abatement System (PAS).

2) MTF Multi-Purpose Chamber (MPC) (designated as MTF-2)

Unit Description: The MPC is a welded stainless steel chamber connected to 5 air locks. Air emissions are controlled by a Pollution Abatement System (PAS). Exhaust gas from combustion devices is controlled by a Thermal Pollution Abatement Device (TPAD).

3) MTF Agent Transfer Chamber (ATC) (designated as MTF-3)

Unit Description: The ATC is a welded stainless steel floored chamber with interlocking galvanized coated aluminum walls and ceiling connected to 6 air locks. Air emissions are controlled by the PAS. The agent repository (AR) connects to this chamber.

4) MTF Closed System Chamber (CSC) (designated as MTF-4)

Unit Description: The CSC is a welded stainless steel floored chamber with interlocking galvanized coated aluminum walls and ceiling connected to 5 air locks. Air emissions are controlled by the PAS.

5) MTF AR (designated as MTF-5)

Unit Description: The AR stores up to 500 kg of chemical agents. Air emissions are controlled by the PAS or Redundant Pollution Abatement System (RPAS). The AR is attached to the ATC.

6) MTF Pollution Abatement System (PAS) (designated as MTF-6)

Unit Description: The PAS includes a pre-filter, HEPA filter, five carbon filters, and a HEPA filter in series. Each filter bank contains 36 filter elements (6 high by 6 wide). The system has two fans and a maximum design flow rate of 36,000 cfm.

7) MTF RPAS (designated as MTF-7)

Unit Description: The RPAS includes a pre-filter, HEPA filter, two carbon filters, and HEPA filter in series. The system has a flow rate of 160 cfm.

8) MTF Thermal Pollution Abatement Device (TPAD) (designated as MTF-8)

Unit Description: The TPAD is a LPG-fired incinerator rated at 4.4 MMBtu/hr with a quench tower.

G. Lothar Salomon Life Science Test Facility (LSTF) (designated as LSTF-0)

Unit Description: The LSTF is used to conduct operations with biosafety level (BSL) 1, 2, and 3 materials as defined in Center for Disease Control publication No. 93-8395. The LSTF includes emission units LSTF 1 through 4.

1) LSTF Containment Area (CA) (designated as LSTF-1)

Unit Description: The CA includes laboratory rooms located within the LSTF for work up to and including BSL-3. BSL-3 operations are conducted in Class II or III Biological Safety Cabinets (BSCs) and air emissions are controlled by the CA ventilation system.

2) LSTF CA Ventilation System (designated as LSTF-2)

Unit Description: All air emissions from the containment area are vented through a ventilation system which includes six parallel banks each bank containing a prefilter and a HEPA filter.

3) LSTF Class II BSC (designated as LSTF-3)

Unit Description: Class II BSCs are used as containment devices when working with infectious agents. These cabinets have an open front with inward airflow and exhaust airflow that are HEPA filtered (see 32 CFR 627.51).

4) LSTF Class III BSC (designated as LSTF-4)

Unit Description: Class III BSCs are used as containment devices when working with infectious agents. They are fully enclosed with a double HEPA filter and operations are conducted through secondary means such as attached gloves and/or half suits (see 32 CFR 627.52).

H. Underground Storage Tanks (designated as TNK-1)

Unit Description: Four 20,000-gallon underground Fuel Oil No. 2 storage tanks. Three tanks are located at the Baker facility and one tank is located at the Ditto facility.

I. Aboveground Storage Tanks (designated as TNK-2)

Unit Description: Two 24,000-gallon aboveground JP-4 storage tanks located at the Michael Army Airfield.

* Equivalency shall be determined by the Executive Secretary.

Conditions on permitted sources (Source wide)

9. Conditions on All Approved Installations

- A. Sulfur content of any fuel oil or diesel burned shall be no greater than 0.5 % by weight unless otherwise specified.
- B. Emissions from sources of fugitive dust shall be minimized.
- C. DPG shall comply with the applicable requirements for recycling and emission reduction for class I and class II refrigerants pursuant to 40 CFR 82, Subpart F - Recycling and Emissions Reduction.
- D. DPG shall comply with the applicable requirements for labeling of products using ozone depleting substance pursuant to 40 CFR 82, Subpart E - Labeling of Products Using Ozone-Depleting Substances.

10. Applicable Federal Requirements.

- A. In addition to the requirements of this AO, all applicable provisions of 40 CFR 60, NSPS Subpart A, 40 CFR 60.1 to 60.18 (General Provisions), and Subpart Dc, 40 CFR 60.40c to 60.48c (Standards of Performance for Small Industrial-Commercial-Institutional Steam Generating Units).
- B. In addition to the requirements of this AO, all applicable provisions of Subpart IIII, 40 CFR 60.4200 to 60.4219 (Standards of Performance for Stationary Compression Ignition Internal Combustion Ignition) apply to this installation.

Records shall be maintained in accordance with R307-415-6a(3)(b). There are no additional reporting requirements for 40 CFR 60 Subpart IIII except those specified in R307-415-6a(3)(c).

For 40 CFR 60.4204(b), 60.4205(b), and 60.4211(c), DPG shall keep records of engine certifications indicating compliance with the standards. DPG shall keep records demonstrating compliance with the manufacturer's specifications for engine installation and configuration.

For 40 CFR 60.4206 and 60.4211(a), DPG shall document activities performed to assure proper operation and maintenance.

For 40 CFR 60.4207(a), (b), for all diesel fuel combusted, DPG shall either:

- 1) Determine the fuel sulfur content expressed as wt% in accordance with the methods of the American Society for Testing Materials (ASTM);
- 2) Inspect the fuel sulfur content expressed as wt% determined by the vendor using methods of the ASTM; or
- 3) Inspect documentation provided by the vendor that directly or indirectly demonstrates compliance with this provision.

For all diesel fuel combusted, DPG shall maintain fuel receipt records and documentation demonstrating compliance with 60.4207(a), (b).

For 40 CFR 60.4208, DPG shall keep records of the install date of each affected emission unit and the applicable requirements under 40 CFR 60 Subpart IIII.

For 40 CFR 60.4211(e), hours of operation shall be monitored using a non-resettable hour meter. Records of monitoring of each affected emission unit shall be kept on a monthly basis in an operation and maintenance log. Records shall distinguish between maintenance-related hours and emergency use-related hours. If maintenance and testing beyond 100 hours per year are required by Federal, State, or local standards, records of these standards shall also be kept.

- C. In addition to the requirements of this AO, all applicable provisions of 40 CFR 63, National Emission Standards for Hazardous Air Pollutants for Source Categories Subparts A and Subpart ZZZZ, 40 CFR 63.6580 to 63.6675 (NESHAPS Reciprocating Internal Combustion Engines) apply to this installation.

11. **Conditions on LPG-Fired Boilers, Heaters and Generators**

- A. Visible emissions shall be no greater than 20 percent opacity for affected emission units constructed after April 25, 1971.
- B. Visible emissions shall be no greater than 40 percent opacity for affected emission units constructed prior to April 25, 1971.
- C. The consumption of LPG on DPG for all LPG-fired boilers and heaters, that have a heat input that is greater than 5.0 MMBTU/hr, and all LPG-fired generators, shall not exceed 1,500,000 gallons per rolling 12-month period.

By the 15th day of each month, DPG shall calculate the total volume of fuel consumed in the previous 12 months. Fuel consumption for each affected emission unit shall be determined by a fuel meter, fuel bills, or trip tickets. Records of fuel consumption shall be kept on a monthly basis for each affected

emission unit. Results of monitoring shall be maintained in accordance with R307-415-6a(3)(b) and reported in accordance with R307-415-6a(3)(c)

12. Additional Conditions on NSPS LPG-Fired Boilers and Heaters

- A. DPG shall comply with all applicable requirements of 40 CFR 60 Subpart A.
- B. DPG shall keep records of the amount of fuel combusted for each month for each affected emission unit. Fuel consumption for the affected emission units shall be determined by a common line fuel meter, fuel bills, or tank system gauge. Fuel consumption shall be prorated between the affected emission units based upon the respective design heat input rates.

13. Conditions on Fuel Oil-Fired Boilers and Heaters

- A. Visible emissions shall be no greater than 20 percent opacity for affected emission units constructed after April 25, 1971.
- B. Visible emissions shall be no greater than 40 percent opacity for affected emission units constructed before April 25, 1971.
- C. The combined consumption of #2 and #1 fuel oil for all boilers and heaters on DPG that have a heat input that is greater than 1.0 MMBTU/hr, shall not exceed 1,000,000 gallons per rolling 12-month period.

14. Additional Conditions on NSPS Fuel Oil-Fired Boilers and Heaters

- A. Sulfur content of any oil combusted shall be no greater than 0.5 percent by weight. The following requirements shall apply:
 - 1) For fuel shipment sampling, the requirements of 40 CFR 60.42c(g), 60.44c(a), 60.44c(g), 60.46c(a) and 60.46c(d)(2); or
 - 2) For fuel supplier certification, the requirements of 40 CFR 60.42c(g), 60.42c(h), 60.44c(a), 60.44c(h), 60.46c(a) and 60.46c(e).
- B. DPG shall comply with all applicable requirements of 40 CFR 60 Subpart A.
- C. DPG shall keep records of the amount of fuel combusted for each month for each affected emission unit. Fuel consumption for the affected emission units shall be determined by a common line fuel meter, fuel bills, or tank system gauge. Fuel consumption shall be prorated between the affected emission units based upon the respective design heat input rates.

15. **Conditions on Diesel-Fired Generators**

- A. Visible emissions shall be no greater than 20 percent opacity for affected emission units manufactured after January 1, 1973, except for operation not exceeding 3 minutes in any hour.
- B. Visible emissions shall be no greater than 40 percent opacity for affected emission units manufactured before January 1, 1973, except for operation not exceeding 3 minutes in any hour.
- C. The consumption of diesel on DPG shall be no greater than 300,000 gallons per rolling 12-month period for all emission units except during emergency power generation.

16. **Conditions on Gasoline-Fired Generators**

For each affected emission unit, DPG shall not allow, cause or permit the emissions of visible contaminants except for stationary operation not exceeding 3 minutes in any hour.

17. **Additional Conditions on Diesel, Gasoline, and LPG-Fired Emergency Generators**

Emergency generators shall be used for electricity producing operation only during the periods when electric power from the public utilities is interrupted or during maintenance.

18. **Conditions on Outdoor Testing (OT)**

- A. The smoke and obscurant testing shall be performed at a location such that the intended actual point of release is not closer than 2 km from the boundary of property comprising DPG or which DPG has a legal use agreement.
- B. DPG shall submit an annual plan of smoke and obscurant tests for planned releases to be performed in the upcoming year (federal fiscal year beginning October 1) for approval of test parameters no later than June 30 of each year for the new federal fiscal year. The plan shall include all tests which may result in the release of air contaminants into the atmosphere and the following information:
 - 1) Name of each test and materials which may be released into the air.
 - 2) Maximum quantities which may be released.
 - 3) Maximum rates of release (quantity per hour).
 - 4) Projected dates of release.
 - 5) Indication of relative toxicity and pertinent regulatory criteria for each material.

- 6) For each material - threshold limit values (TLV) and short-term exposure limits (STEL) if they have such limits.

DPG shall also update the annual plan, as needed, in advance of the test execution. Any updates shall be submitted to the Executive Secretary before the test is executed.

19. Conditions on Open Burn/Open Detonation (Source Wide)

- A. OB and OD of residual munitions and propellants, explosives, and pyrotechnics (PEP) at the affected emission unit shall be conducted in the DTTF (OBOD-1 & OBOD-2) unless emergency in-place OD on the open range (OBOD-3) is necessary for safety reasons and is authorized by the Utah Division of Solid and Hazardous Waste. The DTTF is located in the southeast area of the affected emission unit approximately 1.9 miles west of the affected emission unit east boundary and 1,400 feet north of Durand Road. The 40-acre DTTF is oval-shaped, measuring approximately 1,300 feet by 1,800 feet.
- B. To meet the clearing index requirement of R307-202-5 and BACT requirement of R307-401-6 (1), all of the following conditions shall exist at the time of each non-emergency OB and OD event at the approximate location of the event:
 - 1) Mixing height greater than or equal to 500 meters,
 - 2) Wind speed greater than or equal to 3 miles per hour,
 - 3) Wind speed less than or equal to 15 miles per hour, and
 - 4) No air quality advisories or alerts for Tooele County.

Each event shall be conducted between 1 hour after sunrise and 1 hour before sunset.

- C. DPG shall conduct each OB and OD event at the DTTF (OBOD-1 & OBOD-2) in accordance with the current sound focusing mitigation plan (SFMP) as approved by the Executive Secretary. The SFMP shall include procedures to minimize the effects of over pressure on people outside the DPG boundary. The plan shall contain specific criteria that will be used to decide whether or not to proceed with each OB and OD event. If a nuisance as defined in Section 76-10-803 of the Utah Code is created by an OB event, the OB portion of the SFMP shall be revised and approved by the Executive Secretary before conducting any additional OB events. If a nuisance as defined in Section 76-10-803 is created by an OD event, the OD portion of the SFMP shall be revised and approved by the Executive Secretary before conducting any additional OD events.

Conditions on permitted sources (source specific)

20. **Conditions to Open Burn in DTTF (OBOD-1)**
 - A. Net explosive weight shall be no greater than 1000 lbs per event.
 - B. Net explosive weight shall be no greater than 3000 lbs per day.
 - C. Net explosive weight shall be no greater than 30000 lbs per rolling 12-month period.
21. **Conditions on Open Detonation in DTTF (OBOD-2)**
 - A. Net explosive weight shall be no greater than 1500 lbs per event.
 - B. Net explosive weight shall be no greater than 1500 lbs per day.
 - C. Net explosive weight shall be no greater than 150000 lbs per rolling 12-month period.
22. **Conditions on Open Detonation on Open Range (OBOD-3)**
 - A. Each event shall be conducted after the area has been secured according to Table 3-4 in PAM 385-64 "Withdrawal Distances for Nonessential Personnel", and between 1 hour after sunrise and 1 hour before sunset.
 - B. Net explosive weight shall be no greater than 500 lbs per event.
 - C. Net explosive weight shall be no greater than 1031 lbs per day.
 - D. Net explosive weight shall be no greater than 50000 lbs per rolling 12-month period.
23. **Conditions on CCTF Bldg. 4156 and 4165 Chemical Agent Rooms (CCTF-1 and 2)**
 - A. The interior of each building shall maintain a negative air pressure relative to the atmospheric pressure directly outside of the building when chemical agents are present in the building.
 - B. Each fume hood that captures chemical agents shall be vented to the exhaust stacks equipped with HEPA, and two carbon filters in series.
 - C. The carbon filters on a laboratory exhaust stack shall be replaced when a chemical agent is detected between the first and second carbon filters at a concentration determined by Army but which will not exceed the Source Emission Limit(s) for chemical agents in AR 385-61, Table 2-3.

24. **Conditions on Bushnell MTF (MTF-0)**

The interior of the building shall maintain a negative air pressure relative to the atmospheric pressure directly outside of the building when test materials are present (as defined in the glossary) in the building.

A. Monitoring

During all testing operations when test materials are present, interior pressures shall be continuously monitored by the centralized computer control system to verify they are negative relative to the atmospheric pressure.

DPG shall conduct testing to verify the accuracy of the pressure transducer measurement as per manufacturer specification (or guarantee). This testing shall be conducted at a minimum of once every five years. If operating conditions exceed the manufacturer recommended operating range during any calendar year, the testing shall be conducted once every 12 months. A copy of the manufacturer's operating conditions for the installed transducer shall be kept at the MTF.

B. Recordkeeping:

Once each day during testing operations, DPG shall record the results of monitoring. In addition, DPG shall record the date and time of any alarm condition occurring when test materials are present, a description of the malfunction, and steps taken to correct the malfunction. DPG shall maintain a file containing the current calibrations required for the pressure monitoring instrumentation and records of computer accuracy verification.

25. **Conditions on MTF Test Chambers (MTF-1) and MTF Agent Repository (AR) (MTF-5)**

Emissions to the atmosphere from the PAS and/or RPAS shall not exceed the Source Emission Limits (SEL) listed in the Department of the Army Regulation 385-61 Table 2-3 Airborne Exposure Limits. A copy of the most current version of Table 2-3 of the 385-61 Regulation is attached as Appendix 5. If a filter breakthrough concentration is observed beyond the fourth carbon filter bank, testing shall be immediately stopped.

A. Monitoring

When test materials are present in the MTF, the air stream through the filter banks shall be monitored for breakthrough. Miniaturized Continuous Air Monitoring Systems (MINICAMS), or other method approved by the Executive Secretary, shall be used to determine the concentration of test materials

- 1) Test materials with Source Emission Limits (AR 385-61, Table 2-3).
 - a) Each MINICAMS shall be capable of detecting and quantifying test material concentrations at each sample location at levels less than the source emission limits listed in AR 385-61, Table 2-3.
 - b) Sample Locations. All MINICAMS required by this provision shall be located such that an inspector/operator can safely read the output as required. Sampling by MINICAMS shall be between each successive filter bank to determine breakthrough.

Breakthrough is defined for the third carbon filters as when test materials are detected on the exhaust side of a carbon filter in concentrations exceeding the SEL.

Breakthrough is defined for the fourth carbon filter as when any concentration of test materials is detected on the exhaust side of the fourth carbon filter.

Once a filter breakthrough concentration is observed beyond the third carbon filter bank, preparation for test shutdown shall begin.

- c) Sample Frequency. During testing operations, MINICAMS samples shall be collected at the minimum time intervals the monitor is capable of by design for a specific agent. Sample frequency shall be at least every 15 minutes.
 - d) Analysis Frequency. Each MINICAMS sample shall be analyzed for the concentration of each test material present in the chambers with an SEL within the minimum response time the monitor is capable of by design for a specific agent. Analysis frequency shall be at least every 15 minutes.
 - e) Calibration. The MINICAMS readings shall be accurate to within plus or minus 25 percent for each test material at the breakthrough concentration and SEL. The MINICAMS shall be calibrated for all applicable test materials against primary standards at least once each day that testing operations are conducted. The primary standard shall be established by DPG and shall be submitted to the Executive Secretary for approval before it can be used.

- 2) Test Materials Not Listed in Table 2-3, AR 385-61

DPG shall monitor the use of test materials not listed in Table 2-3.

B. Recordkeeping

Records shall be kept of monitoring results. For instances of filter breakthrough of the fourth and/or fifth filter banks, DPG shall record the date and time that preparation for test shutdown began, and the date and time that testing stopped. DPG shall also record any calculations and assumptions used to compute test material chamber concentrations.

C. Reporting

All instances of breakthrough beyond the fifth carbon filter bank shall be reported to the Executive Secretary telephonically within three hours of the breakthrough if reasonable, but in no case longer than 18 hours after the beginning of the breakthrough. During times other than normal office hours, breakthroughs shall be initially reported to the Environmental Health Emergency Response Coordinator. Within seven calendar days of the beginning of a breakthrough of the fifth carbon filter bank, a written report shall be submitted to the Executive Secretary. The report shall include the cause of the breakthrough, and the estimated quantity of test materials released from the entire system into the atmosphere.

When test materials are present in a chamber, gaseous emissions, except combustion products from internal combustion engines, shall be routed through the PAS before being vented to the atmosphere. During a trial where an internal combustion engine(s) is present in a chamber, DPG shall prevent the contamination of the internal combustion engine intake air, fuel, and combustion products by test materials using the following methods:

- A. Fuel for the internal combustion engine shall be provided from either an internal fuel tank or a source that is external to the chamber.
- B. When fuel is supplied by a source that is external to the chamber, the fuel shall be supplied to the engine within a sealed line to eliminate any potential for contamination by test materials.
- C. When the internal combustion engine is operated from an internal fuel tank, all of the fuel shall be consumed prior to the end of the trial.
- D. Intake air to the internal combustion engine shall be supplied by a source that is external to the chamber. The air supply line shall be sealed to eliminate any potential contamination by test materials.
- E. Internal combustion engine combustion products shall be routed to the TPAD before being vented to the atmosphere. The combustion products line shall be sealed to eliminate any potential contamination by test materials.

26. **Conditions on MTF TPAD (MTF-8)**

Hours of operation shall be no greater than 1000 hours per rolling 12-month period.

27. **Conditions on Lothar Salomon LSTF (LSTF-0)**

- A. No materials with a Biosafety Level (BSL) higher than 3 shall be present at the affected emission unit.
- B. When BSL-3 materials are present DPG shall maintain a negative air pressure in the building relative to the atmospheric pressure directly outside of the building.
- C. All Biological Safety Cabinets (BSC) shall be certified according to 32 CFR 627 before work with materials of a BSL greater than 1.

28. **Conditions on LSTF CA**

- A. The following requirements shall apply to the containment area:
 - 1) All air exhausted to the atmosphere shall be controlled by the CA ventilation system.
 - 2) The CA ventilation system shall be certified in operable condition.
- B. Monitoring

Once each day, the CA ventilation system shall be monitored to verify it is functioning correctly and that airflow is being directed to the filter banks prior to exiting the stack. If the computer system used to track the airflow in the CA is undergoing repairs, DPG shall perform an inspection of the filter system and airflow to verify proper operation.
- C. Recordkeeping

DPG shall record the date and time CA ventilation system monitoring occurred, the results of monitoring, and the method used to evaluate its operation. DPG shall keep maintenance records for all six of the filter banks including filter replacement dates and the type of filter replaced.

Records & Miscellaneous

- 29. At all times, including periods of startup, shutdown, and malfunction, owners and operators shall, to the extent practicable, maintain and operate any equipment approved under this Approval Order including associated air pollution control equipment in a manner consistent with good air pollution control practice for minimizing emissions. Determination of whether acceptable operating and maintenance procedures are being used will be based on information available to the Executive Secretary which may include, but is not limited to, monitoring results, opacity observations, review of operating and maintenance procedures, and inspection of the source. All maintenance performed on equipment authorized by this AO shall be recorded.
- 30. The owner/operator shall comply with R307-150 Series. Inventories, Testing and Monitoring.

31. The owner/operator shall comply with R307-107. General Requirements: Unavoidable Breakdowns.

The Executive Secretary shall be notified in writing if the company is sold or changes its name.

This AO in no way releases the owner or operator from any liability for compliance with all other applicable federal, state, and local regulations including R307.

A copy of the rules, regulations and/or attachments addressed in this AO may be obtained by contacting the Division of Air Quality. The Utah Administrative Code R307 rules used by DAQ, the Notice of Intent (NOI) guide, and other air quality documents and forms may also be obtained on the Internet at the following web site:

<http://www.airquality.utah.gov>

The annual emission estimations below include point source, fugitive emissions and grandfathered emissions and do not include fugitive dust, road dust, and tail pipe emissions. These emissions are for the purpose of determining the applicability of Prevention of Significant Deterioration, non-attainment area, maintenance area, and Title V source requirements of the R307. They are not to be used for determining compliance.

The Potential to Emit (PTE) emissions for the DPG site are currently calculated at the following values:

	<u>Pollutant</u>	<u>Tons/yr</u>
A.	PM ₁₀	7.85
B.	SO ₂	63.01
C.	NO _x	175.17
D.	CO.....	150.91
E.	VOC.....	0.65
F.	Total HAPs	0.43

Appendix 1

Glossary

Definitions for technical terms used in this permit.

Adjacent Space – The atmosphere or an area connected to an area by an uncontrolled opening (door, window, vent, defect, etc). Uncontrolled openings are those which are not controlled by a permitted air pollution control device or have not been permanently shut and/or sealed.

Agent – see biological agent and chemical agent. (The references reflect the intent of current U.S. Army definitions for these materials. Any future changes made by the U.S. Army are to be incorporated by default.)

Area – For this permit, area refers to any of the following: chamber, room, corridor, air lock or other enclosed space.

Biological Agent – Biological organisms, such as bacteria or viruses, or products of biological organisms, such as toxins. The CDC applies the term biological agent to all BSL categories of biological organisms. See Etiologic Agent.

Biosafety Level (BSL) – a combination of facilities, equipment, and procedures used in handling etiologic agents to protect the worker, environment, and the community. This combination is proportional to the potential hazard of the etiologic agent in question.

BSL1 – the facilities, equipment, and procedures suitable for work involving agents of no known or of minimal potential hazard to laboratory personnel and the environment.

BSL2 – the facilities, equipment, and procedures applicable to clinical, diagnostic, or teaching laboratories, suitable for work involving indigenous agents of moderate potential hazard to personnel and the environment. It differs from BSL-1 in that

- a. The laboratory personnel have specific training in handling pathogenic agents
- b. The laboratory is directed by scientists with experience in the handling of specific agents
- c. Access to the laboratory is limited when work is being conducted, and
- d. Certain procedures in which infectious aerosols could be created are conducted in biological safety cabinets or physical containment equipment. Personnel must be trained. Strict adherence to recommended practices is as important in attaining the maximum containment capability as is the mechanical performance of the equipment itself.

BSL3 – the facilities, equipment, and procedures applicable to clinical, diagnostic, research, or production facilities in which work is performed with indigenous or exotic agents where there is potential for infection by aerosol and the disease may have serious or lethal consequences. It differs from BSL-2 in that

- a. More extensive training in handling pathogenic and potentially lethal agents is necessary for laboratory personnel,
- b. All procedures involving the manipulation of infectious material are conducted within biological safety cabinets or by other physical containment devices,

- c. The laboratory has special engineering and design features, including access zones, sealed penetrations, and directional airflow, and
- d. Any modification of BSL-3 recommendations must be made only by the commander or director

Chamber – engineered room in which trials, storage, and/or transfers using chemical agents and/or non-agents take place.

Chemical agent – a chemical substance which is intended to kill, seriously injure, or incapacitate persons through its physiological effects and which is subject to Army regulations AR 50-1 and AR 385-61. Excluded from consideration are riot control agents, commercially available chemicals, herbicides, smoke, and flame. (Source: AR 385-61.)

Defect – includes, but not limited to, visible cracks, holes, or gaps in duct work or piping; loose connections and worn seals; or broken or missing caps or other closure devices.

Depot Area Air Monitoring System (DAAMS) - DAAMS is a portable air-sampling unit that is designed to draw a controlled volume of air through a glass tube filled with a collection material (for example, Tenax GC). As the air is passed through the solid sorbent tube, agent is collected. After sampling for the predetermined period of time and flow rate, the tube is removed from the vacuum line and sent to a chemical laboratory for analysis (approximately 1-hour process time) to determine the presence, type, and quantity of agent collected in samples. This technique will sample down to the AEL and is to provide low-level detection capability for GA, GB, HD, and VX, and Lewisite. (DA PAM 385-61)

Detonation – a violent chemical reaction within a chemical compound involving heat and pressure. A detonation proceeds through the reacted material towards the unreacted material at a supersonic velocity. The result of the chemical reaction is exertion of extremely high pressure on the surrounding medium forming a propagating shock wave that originates at supersonic velocity. A detonation, when located at or near the ground surface, usually results in a crater. (Source: AR 385-64. Ammunition and Explosives Safety Standards).

Emergency Event – Events that have to be performed because of immediate danger to the public and unsuspecting personnel.

Emission Limits for MTF – concentrations which may not be exceeded at emission points at the MTF PAS, RPAS, and TPAD. Limits are based on chemical agent criteria found in AR 385-61 Table 2-3.

Etiologic agent – a viable microorganism, or its toxin which causes or may cause human disease, and includes those agents listed in 42 CFR 72.3 of the Department of Health and Human Services regulations, and any material of biological origin that poses a degree of hazard similar to those organisms. (Source: AR 385-69)

Experimental chemical agent – Chemical substance being tested, developed, or altered for chemical defense purposes and which has a toxicity equal to or greater than current nerve or mustard agents. (Source: AR 385-61)

Miniature continuous air monitor (MINICAMS) - is an automatic air monitoring system that collects compounds on a solid sorbent trap, thermally desorbs them into a capillary gas-chromatography column

for separation, and detects the compounds with a flame-photometric detector. It is a lightweight, portable, real time, low-level monitor with alarm capability, designed to respond to 0.0001 mg/m³ for GB in less than 5 minutes, 0.00001 mg/m³ for VX in less than 15 minutes, and 0.003 mg/m³ for mustard in less than 5 minutes. (DA PAM 385-61)

Munition – a general term applied to all types of armament, including weapons utilized during combat or designed for training of the armed forces for inflicting or aiding in inflicting damage to the neutralization of enemy personnel, equipment, or facilities. It includes such items as bombs, rockets, missiles, small arms and ammunition, bulk explosives, smoke agents, incendiaries, and non-explosive practice and training devices.

Non-agent – any substance, except chemical agents, listed as a hazardous air pollutant (HAP) and/or that has a biological exposure index.

Obscurant – anthropogenic or naturally occurring particles suspended in air that block or weaken transmission of a portion of the electromagnetic spectrum, such as visible and infrared radiation, or microwaves. (Source: National Research Council (NRC), Toxicity of Military Smokes and Obscurants, 1987)

Operation – Any operation which involves the use (i.e., test, trial, etc) and/or transfer of chemical agents, biological agents, and/or non-agents.

Pathogen – any biological organism capable of producing disease. (sci)

Permeability – the condition of being permeable, allowing the passage or diffusion of liquids or gases through it. (sci)

Present (CCTF) – For chemical agent, present is defined as when a container of agent is opened and remains present until the agent is either used completely, decontaminated to X level, or returned to a secure storage configuration.

Present (LSTF) – For biological agents, present refers to the time period starting when an open container of agent first enters an area until all unused agent in the open container has been removed from the area.

Present (MTF) - For chemical agents, present refers to the time period starting when agent vapor concentrations are at or above the SEL as defined in AR 385-61. For biological agents, present refers to the time period starting when an open container of agent first enters an area until all unused agent in the open container has been removed from the area.

Secured - Table 3-4 in PAM 385-64 “Withdrawal Distances for Nonessential Personnel”.

Smoke – Airborne material generated as an obscurant by burning or vaporizing some product. (Source: NRC, 1987)

Source emission limit (SEL) – chemical agent airborne exposure limit attainable by a well designed and well operated incineration facility. Source emission limits are listed in Table 2-3 of AR 385-61.

Test – a uniquely named, customer funded program, generally involving multiple phases or trials. Each test will have a test plan developed to describe the operational theory of a specific test item and to define

the general goals and specific requirements of collecting data to validate the operational theory and quantify the actual performance of the item against varying conditions and environments. (Source: Dugway)

Test material – chemical agent or non-agent as defined in this glossary.

Toxin – any chemical causing an adverse effect on a living organism.

Trial – an individual event within a given test that is defined as the use of test material(s) within a containment system (chamber, hood, fixture, disseminator, reactor, etc.) to test an item, with the intent to gather a separate and uniquely definable set of data. Independent trials are defined by parameters including but not limited to temperature, humidity, flow, differential pressure, test material type, duration, and target concentration values. (Source: Dugway)

Transfer operation – an activity where a test material will be transferred from one container to another.

Appendix 2

Army Regulation 385-61 Table 2-3

Table 2-2
IDLH Concentrations for Chemical Agents GA, GB, GD, and VX¹

Agent	Concentration (mg/m ³) ²
GA/GB	0.2
GD	0.06
VX	0.02

Notes:

¹ Since IDLH values are used solely for the purpose of establishing the concentrations at which SCBA or supplied-air respirators are required, it is not necessary to formally establish IDLH values for H and L, since workers will already be required to wear these types of respiratory protection at concentrations much lower than what is considered IDLH for H and L, due to concerns over carcinogenicity.

² Oxygen levels must not be less than 19.5 percent.

Table 2-3
Airborne Exposure Limits¹

Occupational Scenario	Chemical Agents (mg/m ³)				
	GD	GA/GB	VX	H, HD, HT	L ²
Unmasked Agent Worker 8-hour TWA in any work shift	.00003	.0001	.00001	.003 ³	.003
Non-Agent Worker and General Population 72-hour TWA	.000003	.000003	.000003	.0001 ⁴	.003
Ceiling value ⁵	.00003	.0001	.00001	.003 ³	.003
Source Emission Limit ⁶	.0001	.0003	.0003	.03	.03

Notes:

¹ Ceiling value normally refers to the maximum exposure concentration at any time, for any duration. Practically, it is the average value over the minimum time to determine a specified concentration.

² No individual will be intentionally exposed to direct skin or eye contact with any amount of solid or liquid chemical agent, or to solid materials contaminated with agent.

³ All concentrations measured as Lewisite.

⁴ HT is measured as HD.

⁵ It is recommended that this level of detection (using a 12-hour sampling time) be demonstrated and used at all sites where mustard will be transported and destroyed.

⁶ Source emissions limits are primarily an engineering guideline. These limits should be attainable by a well-designed and well-operated incineration facility; give an early indication of upset conditions; and be accurately measurable in a timely matter.

Table 2-4
No Effects Concentrations for Chemical Agents GA, GB, GD, and VX

Agent	Concentration (mg/m ³)
GA/GB	0.000003
GD	0.000003
VX	0.000003

Chapter 3

Waivers and Exemptions

3-1. Policy

Army policy requires compliance with this regulation and DA Pam 385-61. When strategic or other compelling reasons make a deviation from these requirements necessary, installation/ activity commanders/directors may request a waiver (temporary authority to deviate) or an exemption (long term authority to deviate). The level of approval authority depends upon the risk identified and type of request (waiver or exemption).

3-2. Waiver authority

a. The Chief of Staff, Army (CSA) is the controlling authority for granting waivers of chemical agent and munitions safety standards. Waiver authority is redelegated as detailed in figure 3-1.

b. Commanders with waiver authority will—

(1) Ensure the existence of operational and compelling reasons before granting or renewing waivers.

(2) Grant waivers of standards only for installations and activities within their areas of authority.

(3) Ensure that compensatory measures identified in the waiver or exemption request are in effect, as applicable.

(4) Take all available steps to safeguard employees against the hazards covered by the standard.

c. Waiver process is as follows:

(1) A risk assessment forms the basis of a request for waiver or exemption by identifying the level of risk involved, any control measures or mitigating factors that reduce the level of risk, and the remaining level of risk to be accepted by the approval authority. The risk assessment will be forwarded, with the request for waiver or exemption, to the appropriate decision authority level (Figure 3-1) for approval. The risk assessment will contain, as a minimum, the following information:

(a) Mission requirements and compelling reasons which make the waiver essential, and the impact if the waiver is not approved. Include maps showing actual measured distances to internal and external exposures, location of personnel with exposure potential, description of all exposed sites/facilities, quantity, type, or class of ammunition or explosives, if applicable.

(b) Safety regulations, including specific safety requirements or conditions (cited by paragraph) that will be violated, and reasons for the violations.

(c) A hazard analysis which identifies actual and potential hazards which may result from the waived requirements or conditions. This analysis will include both the 1-percent lethality, as defined in DA Pam 385-61, and no effects distances, if applicable.

(d) Any operational restrictions or limitations (for example, wind direction, temperature).

ACRONYMS

The following lists commonly used acronyms and their associated translations as they apply to this document:

40 CFR	Title 40 of the Code of Federal Regulations
AO	Approval Order
ATT	Attainment Area
BACT	Best Available Control Technology
CAA	Clean Air Act
CAAA	Clean Air Act Amendments
CDS	Classification Data System (used by EPA to classify sources by size/type)
CEM	Continuous emissions monitor
CEMS	Continuous emissions monitoring system
CFR	Code of Federal Regulations
CO	Carbon monoxide
COM	Continuous opacity monitor
DAQ	Division of Air Quality (typically interchangeable with UDAQ)
DAQE	This is a document tracking code for internal UDAQ use
EPA	Environmental Protection Agency
HAP or HAPs	Hazardous air pollutant(s)
ITA	Intent to Approve
MACT	Maximum Achievable Control Technology
NAA	Nonattainment Area
NAAQS	National Ambient Air Quality Standards
NESHAP	National Emission Standards for Hazardous Air Pollutants
NOI	Notice of Intent
NO _x	Oxides of nitrogen
NSPS	New Source Performance Standard
NSR	New Source Review
PM ₁₀	Particulate matter less than 10 microns in size
PM _{2.5}	Particulate matter less than 2.5 microns in size
PSD	Prevention of Significant Deterioration
R307	Rules Series 307
R307-401	Rules Series 307 - Section 401
SO ₂	Sulfur dioxide
Title IV	Title IV of the Clean Air Act
Title V	Title V of the Clean Air Act
UAC	Utah Administrative Code
UDAQ	Utah Division of Air Quality (typically interchangeable with DAQ)
VOC	Volatile organic compounds